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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,519	01/13/2009	Andreas POPPE	PAT-01156/BC1-0204	1997
77224	7590	01/20/2011	EXAMINER	
Mary E. Golota Cantor Colburn LLP 201 W. Big Beaver Road Suite 1101 Troy, MI 48084			SASTRI, SATYA B	
			ART UNIT	PAPER NUMBER
			1762	
			NOTIFICATION DATE	DELIVERY MODE
			01/20/2011	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/595,519	POPPE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SATYA B. SASTRI	1762	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,6-14,21 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-14,21 and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/8/10 and 4/25/06</u> .                                      | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant's election with traverse of Group I invention, claims 1-3, 6-15, 21, 23-25 in the reply filed on 1/3/11 is acknowledged. The traversal is on the ground(s) that the technical feature common to presently amended claims in the two groups is that the composition is being prepared in the presence of at least one kind of nanoparticle and that this common technical feature is not taught by Yamaya et al. Applicants further allude to this common technical feature pointed out in the PCT written Opinion and to paragraphs [0070] to [0080] of the published application for support. Applicant's arguments are not deemed persuasive because of the following reasons:

At the outset, it is noted that the language in amended claim 1 is confusing. It is unclear because the limitation "wherein the composition is characterized in being prepared in the presence of at least one kind of nanoparticles" is ambiguous. Examiner interprets that the process of hydrolyzing/condensing is conducted in the presence of at least one kind of nanoparticles, applicants are requested to clarify their position.

The prior art teaches that the coating compositions comprising hydrolysable of silyl group-bearing acrylic polymers may further include inorganic fine particles so as to achieve desired hardness, mar resistance and electrical conductivity (col. 11, lines 47-63). Furthermore, fine inorganic oxide particles having an average particle size of 0.001 to 0.1  $\mu\text{m}$ , most preferably 0.001 to 0.05  $\mu\text{m}$ , are disclosed as being desirable for accomplishing such property improvement (col. 7, lines 35-56). The disclosed fine particulate dimensions meet the presently recited nanoparticle requirement of claim 1. The teaching that fine inorganic oxide particles are to be added to the hydrolyzable silyl group-bearing acrylic polymer prior to the

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hydrolysis/condensation reactions is implicit because such reactions would afford cured/crosslinked protective layer (col. 11, lines 12-15, col. 12, lines 29-36). Therefore, the compositions wherein the hydrolyzing or condensing step is accomplished in the presence of at least one kind of nanoparticles as presently claimed are taught by the prior art reference.

In light of above, the requirement is still deemed proper and is therefore made FINAL. Claims 16-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### **Claim Objections**

2. Claims 6, 7, 10, 24 are objected to because of the following informalities: Claim 6 depends on cancelled claim 5. Claim 7 should recite “oligomer polymer” in the alternative. Claim 10 has a period missing at the end of the claim. Claim 24 should replace the preamble with “A composition”.

Appropriate corrections are required.

### **Claim Rejections - 35 USC § 112**

3. Claims 1-3, 6-15, 21, 23-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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As noted above, the language in amended claim 1 is confusing. It is unclear because the limitation "wherein the composition is characterized in being prepared in the presence of at least one kind of nanoparticles" is ambiguous. Examiner interprets that the process of hydrolyzing/condensing is conducted in the presence of at least one kind of nanoparticles, applicants are requested to clarify their position. Claims 2, 3, 6-15, 21, 23-25 depend on the rejected base claim 1.

In claim 15, it is unclear if the recited ratio is on the wt. basis or molar basis.

### **Claim Rejections - 35 USC § 102 and 103**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 3, 6-14, 21, 24 are rejected under 35 U.S.C. 102(e) as anticipated by Yamaya et al. (US 6,846,568 B2).

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Yamaya et al. disclose a protective layer preparable from an acrylic polymer-containing composition, and especially a hydrolysable silyl group-bearing acrylic polymer-containing composition in cured form (col. 4, lines 19-24). The acrylic polymer may be prepared from alkoxysilyl group-bearing acrylic monomers (col. 10, lines 10-43) and copolymerizable monomer (meth)acrylate monomers such as methyl methacrylate and glycidyl methacrylate (col. 10, lines 55-57). Working example 3 discloses a free radical polymerization of the three monomers (col. 23) and subsequent hydrolysis/condensation in the presence of acetic acid (col. 23, col. 27).

The prior art further teaches optional inclusion of inorganic fine particles so as to achieve desired hardness, mar resistance and electrical conductivity (col. 11, lines 47-63). Furthermore, fine inorganic oxide particles having an average particle size of 0.001 to 0.1  $\mu\text{m}$ , most preferably 0.001 to 0.05  $\mu\text{m}$ , surface treated with an organometallic compound such as a silane, titanium, aluminum or zirconium coupling agent, are disclosed as being desirable for accomplishing such property improvement (col. 7, lines 35-56). Therefore, given that the compositions comprising the hydrolysable silyl group-bearing acrylic polymer bearing epoxy groups are further open to the inclusion of nanoparticles, the compositional requirements are presently recited in claim 1 are met by the prior art. As noted above, the teaching that fine inorganic oxide particles are to be added to the hydrolyzable silyl group-bearing acrylic polymer prior to the hydrolysis/condensation reactions is implicit because such reactions would afford cured/crosslinked protective layer (col. 11, lines 12-15, col. 12, lines 29-36). Therefore, the process of preparing compositions wherein the hydrolyzing or condensing step is accomplished

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in the presence of at least one kind of nanoparticles as presently claimed are taught by the prior art reference.

In light of above, the presently cited claims are anticipated by the prior art.

With regard to claims 6-14, 21, working example 3 meets the claimed limitation.

With regard to claim 2, it is noted that the claimed compositional requirements are by the prior art.

7. Claims 23, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya et al. (US 6,846,568 B2) in view of Shoup et al. (US 6,905,772 B2).

The discussion with regard to Yamaya et al. above in paragraph 6 is incorporated herein by reference.

The prior art fails to disclose compositions comprising nanoparticles that are cationically stabilized.

Secondary reference to Shoup et al. discloses abrasion resistant topcoat composition comprising condensates based on hydrolysable silanes having an epoxide group and nanoparticulate inorganic solids having a particle size between 1 to 100 nm (ab.). The prior art further teaches that Lewis acid groups on the particle surface also acts as hydrolysis and curing catalyst during polycondensation reaction (col. 6, lines 40-45). Given the teaching, it would have been obvious to one of ordinary skill in the art to introduce Lewis acid groups, i.e. cationic groups on the nanoparticle surface in Yamaya et al. curable compositions and thereby arrive at the present invention.

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### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Mondays, Thursdays and Fridays, 7AM-5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. David Wu can be reached on 571-272-1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satya B Sastri/

Primary Examiner, Art Unit 1762